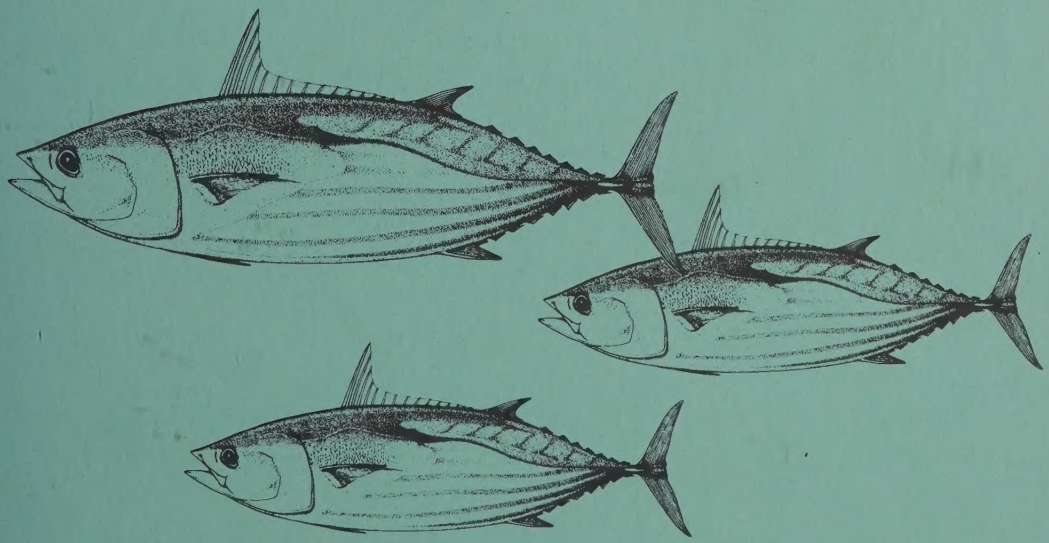
OCTOBER 1979
No. 10

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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FISHING INFORMATION

OCTOBER 1979, No. 10

EDITOR: JAMES A. RENNER

I. Barrett, Director, SOUTHWEST FISHERIES CENTER
J. Carr, Deputy Director

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

To cancel delivery of this publication in the event you no longer need to receive it, or to change the delivery address if you are moving but still need to receive it, please notify us by writing: James A. Renner, Editor, Fishing Information, National Marine Fisheries Service, Southwest Fisheries Center, P.O. Box 271, La Jolla, California 92038.

Submitted for publication - November 29, 1979

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1, 2, 3, 4, 5, 6, 7, and 15 day supplement)

TECHNICAL EDITOR:
R. Allen
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National Ocean Survey, Pacific Marine Center, Seattle, Washington

Fisheries Research Board of Canada, Pacific Environment Institute, West Vancouver, British Columbia by L. F. Giovando from observations by:
J. Redhead at Langara Island Light; D. Geiger at Cape St. James Light;
L. Collins at Kains Island Light; M. V. Stewart at
Amphitrite Point Light

Scripps Institution of Oceanography, La Jolla, California

Expendable bathythermograph and salinity observations are made by the mates and engineers of the *Mauwili* of the Matson Navigation Co. The data are processed under supervision of D. R. McLain at the NMFS Pacific Environmental Group, Monterey, California, using computer facilities of the Fleet Numerical Weather Central, Monterey. The project is partially supported by the National Science Foundation and the Office of Naval Research.

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

During October sea surface temperatures (SST) normally decrease 1 to 2°C over most of the north Pacific. The cooling rate of the ocean surface layer varies according to the amount of wind mixing and cloud cover which are primarily controlled by the locations and intensities of the Aleutian low and eastern Pacific high pressure systems. Weather fronts usually develop in the central north Pacific along with low pressure cells that intensify along the southern boundary of the Aleutian low. The Aleutian low is normally located near 57°N, 150°W, and the eastern Pacific high pressure center near 33°N, 138°W (Figure 1).

During October 1979 the Aleutian low was 4 to 6 millibars lower than normal and located near 55°N, 165°W (Figure 2). The high pressure center was weaker than normal and centered near 33°N, 137°W. Because of the persistent low pressures in the Aleutian low system, surface winds were 3 to 5 knots above normal from 35°N to 50°N between 130°W and 180°. South of 35°N, surface winds were near normal except along the coast of Baja California where they were 2 to 4 knots above normal (Figure 2).

The SST pattern (Figure 3) reflected a weak north Pacific Ocean front along 40°N, particularly east of 140°W where the isotherms (SST contours) bulged to the northeast off the coasts of Washington and Oregon. In the coastal region north of 40°N, SST's have remained more than 1°C above normal (Figure 5) for several months and from 1 to 2°C greater than in October 1978 (Figure 7). West of 125°W, SST's were more than 1°C above normal over a large wedge-shaped area extending westward from the U.S. west coast toward Hawaii (Figure 5). The pattern of positive SST differences from October 1978 (Figure 7) and the positive departure from normal east of 140°W has persisted for several months. However, the extent of SST's greater than 1°C above normal in the eastern Pacific diminished during October. This was due, in part, to the increased frequency of Pacific storms which crossed the U.S. West Coast south of 50°N in October. West of 140°W from 30°N to 50°N the negative departures greater than 1°C expanded northward from September to October as the surface winds and ocean mixing intensified along the southern periphery of the deepened Aleutian low. The region covered by negative SST differences greater than 1°C from October 1978 (Figure 7) was similar to the negative anomalies in Figure 5.

The 1979 U.S. Albacore fishery was one of the poorest on record as it came to a close with landings through October totalling about 25% of the seasonal 10 year average. Among the several factors contributing to the low landings in 1979, two oceanographic factors were significant: (1) weak and inconsistent periods of upwelling and ocean mixing resulted in diffused or non-existent temperature edges (fronts) along most of the west coast; and (2) frequent periods of high winds and rough seas hampered fishing effort from 60 to 300 miles off central and northern California.

Western North Pacific

During October the high pressure system extended over the entire western Pacific from 20°N to 45°N and set up a steady southerly surface wind flow west of 160°E which aided the transport of warm water northward east of Japan in the Kuroshio Current and its eastward extension. This resulted in SST's more than 1°C above normal in several places between 140°E and 165°E (Figure 6). East of northern Japan from 40°N to 50°N SST's cooled at greater than seasonal rates, and the area covered by negative SST's departures greater than 1°C expanded during October. Because the Aleutian low pressure system expanded westward in October, surface west winds intensified between 40°N and 50°N along the northwestern boundary between the low and high pressure systems. This resulted in greater negative departures and an intensification

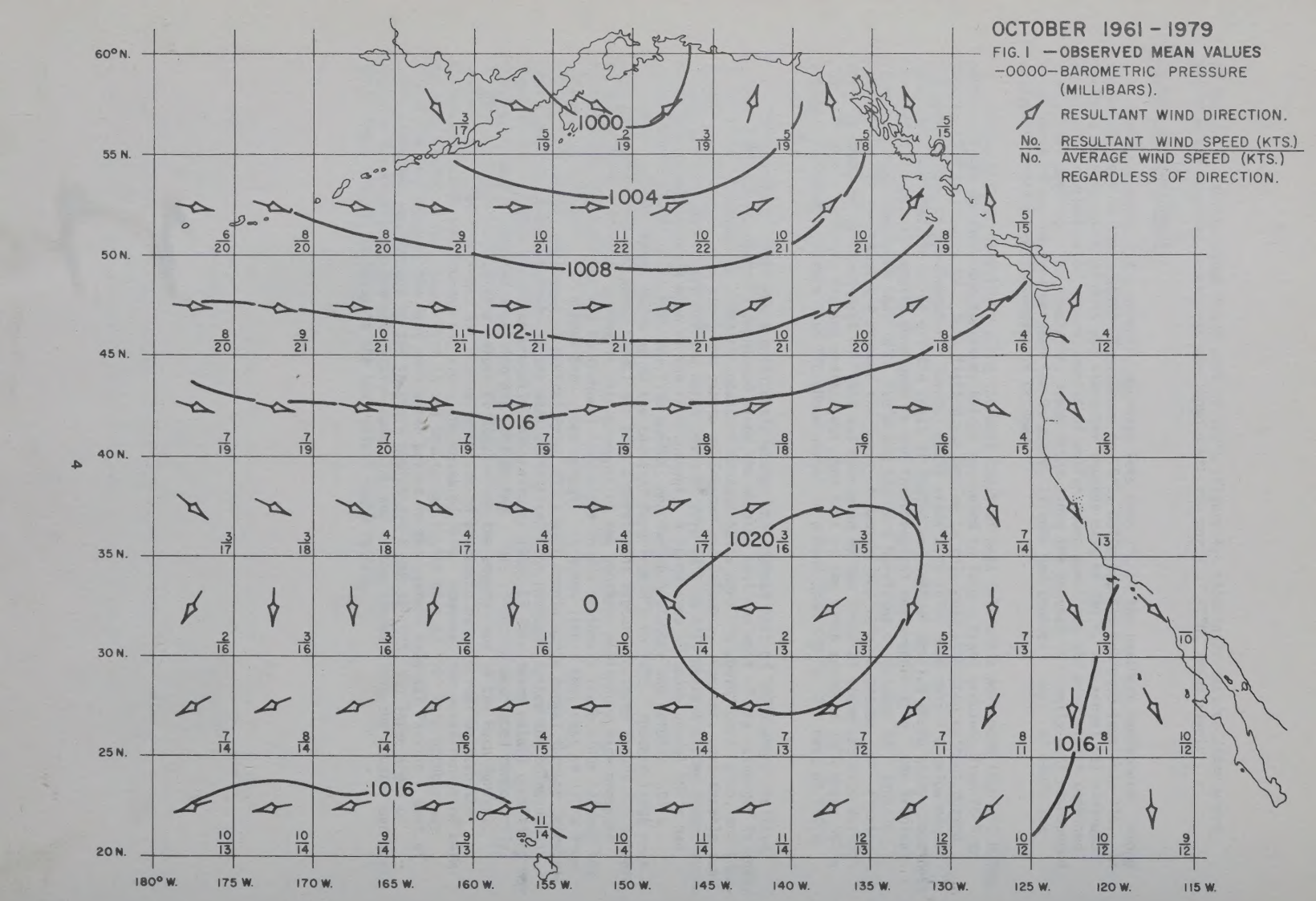
of the north Pacific Ocean front west of 165°E (Figure 4), especially east of Japan where positive and negative departures developed south and north of 42°N, respectively.

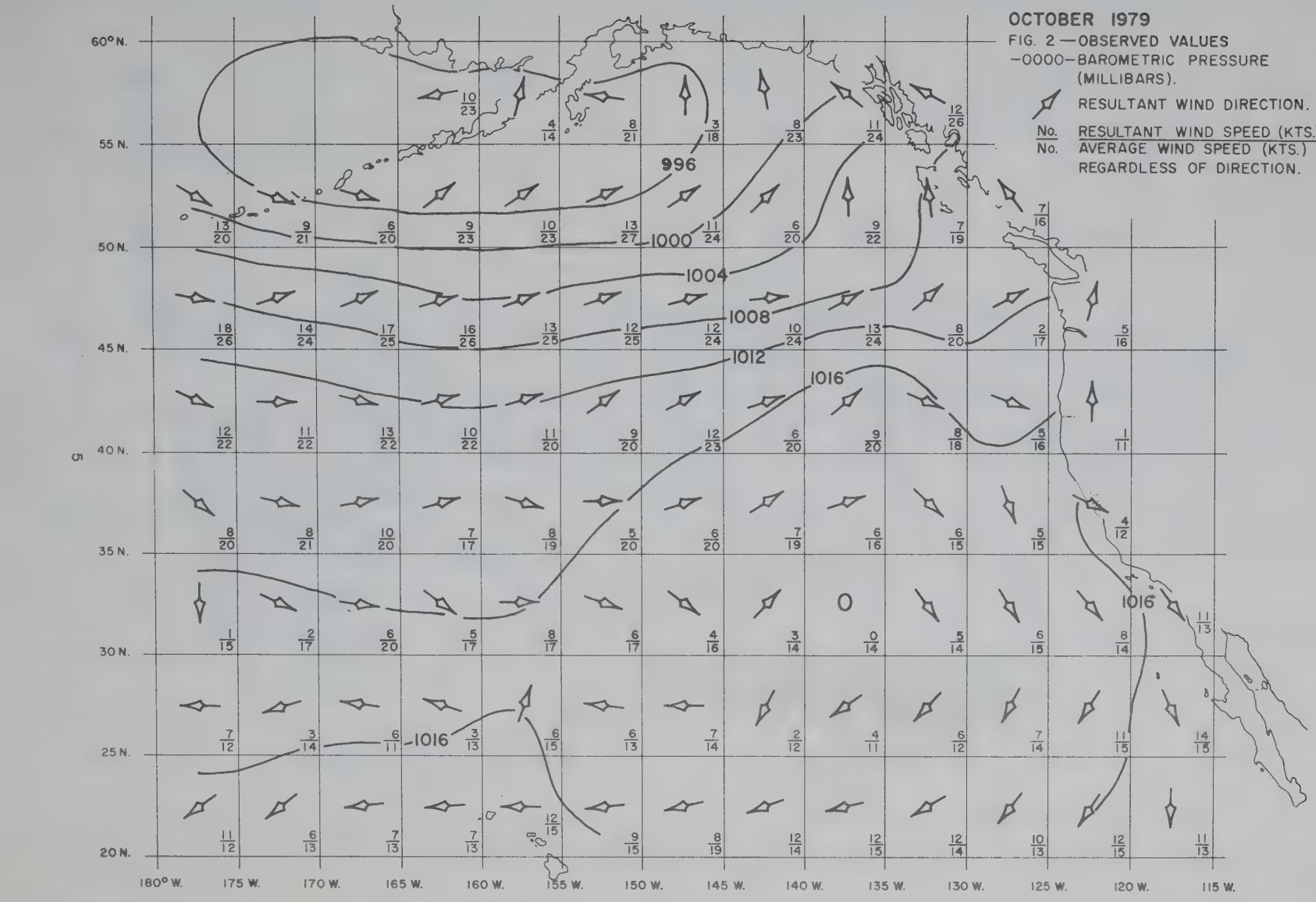
Eastern Tropical Pacific

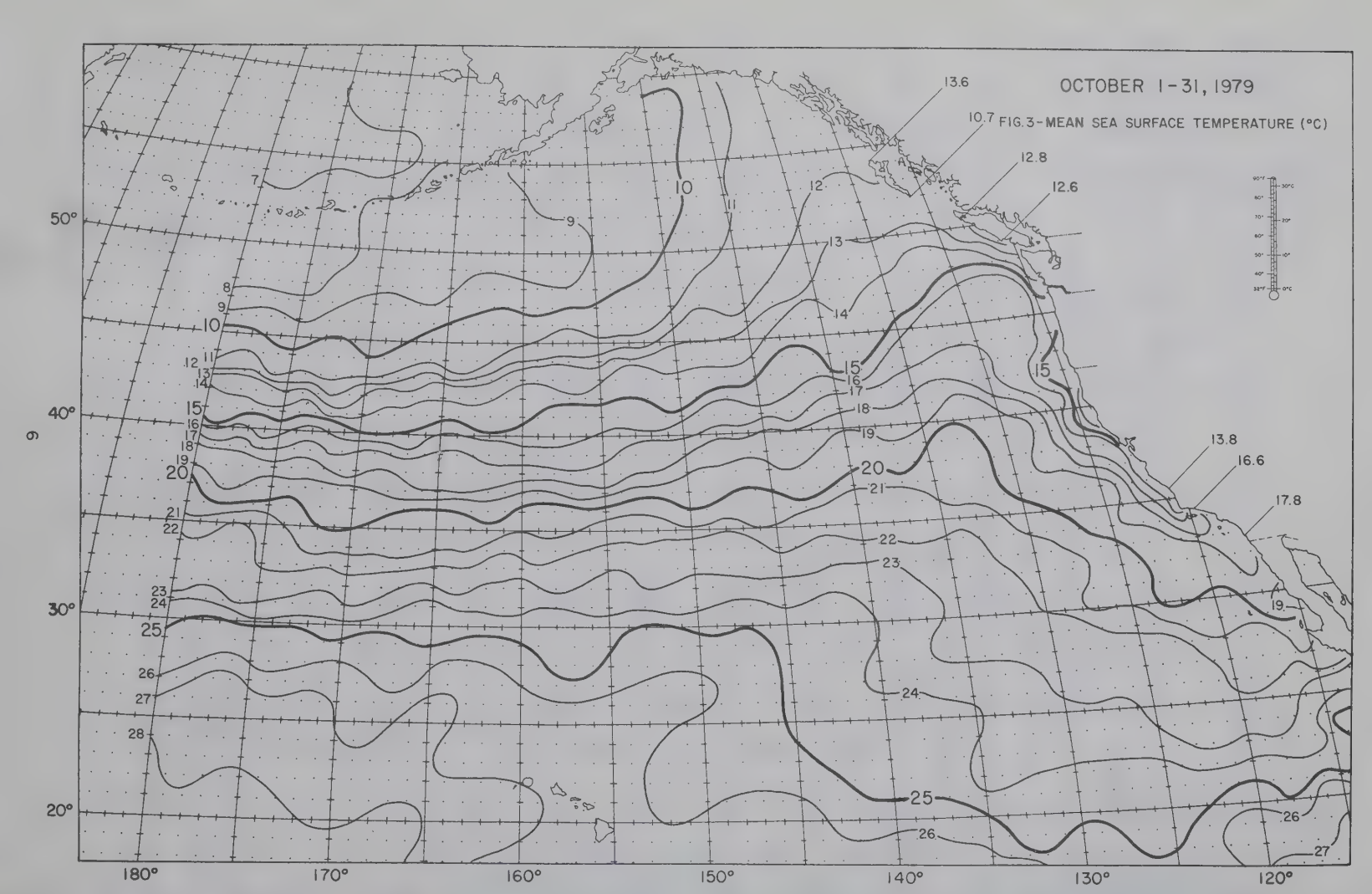
During October, SST's normally decrease less than 1°C in the northern hemisphere. Along the equator and in the southern hemisphere to 20°S, SST's usually increase less than 1°C. In the Peru Current north of 30°S and along the equator east of 150°W, the annual SST minimums are usually reached after several months of active ocean upwelling and wind mixing combined with winter cooling. The equatorial ocean front along the equator is usually most pronounced at or north of the equator between the Galapagos Islands and Ecuador. West of 140°W the equatorial front normally weakens in October.

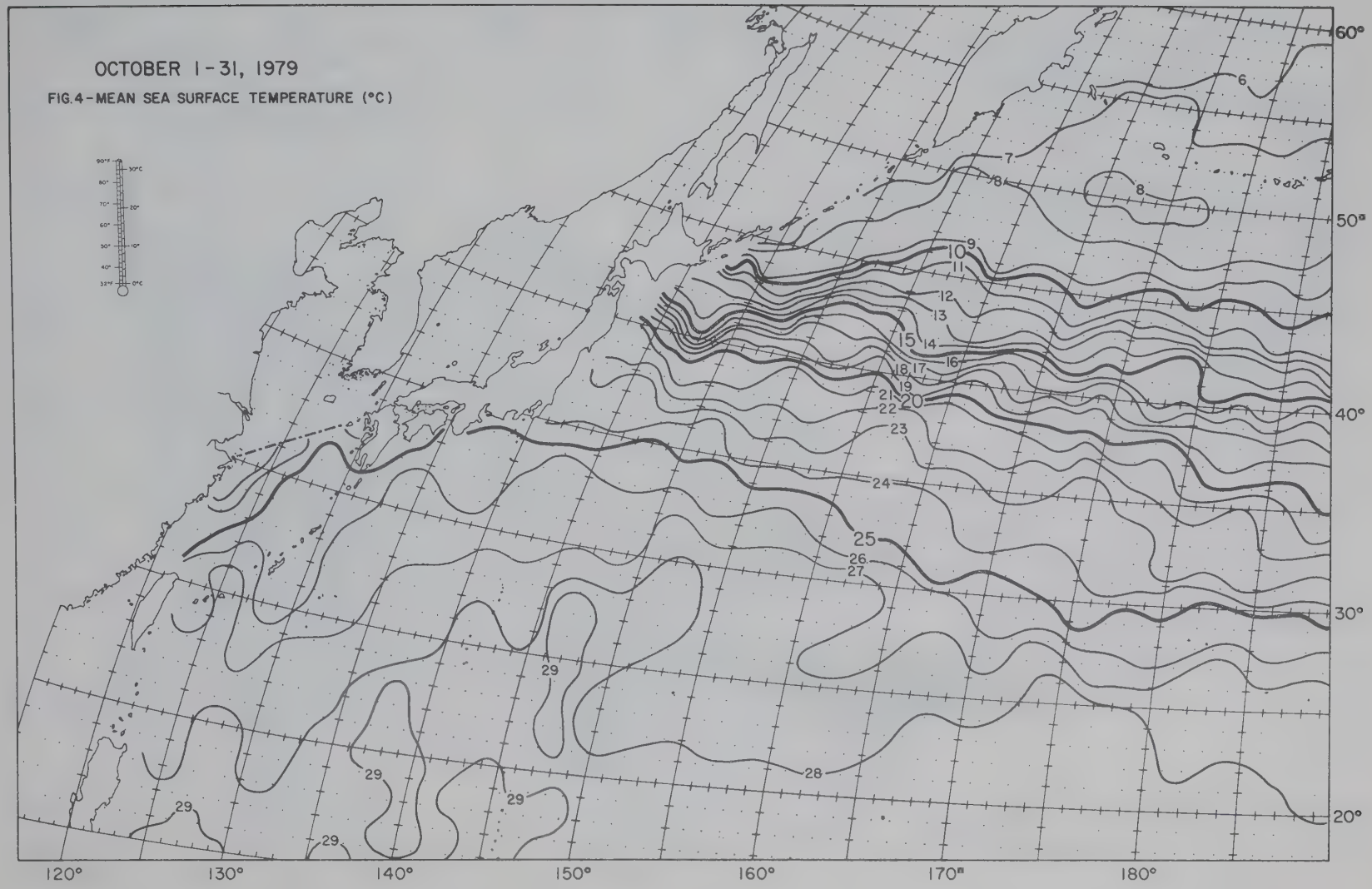
During October 1979 SST's along the west coast of Baja California were more than 1°C below normal (Figure 9) where the isotherms bulged southward to form a tight gradient from 26°N to the tip of Baja (Figure 8). Tuna fishing was active in this area with good catches during frequent periods of good weather. Several small areas with SST's more than 1°C below normal persisted more than 100 miles off the coast of Mexico and Central America where heavy cloudiness and frequent tropical squalls developed in the intertropical convergence zone. One tropical storm (Ignacio) developed near 12°N, 105°W and became a hurricane on October 27. Ignacio recurved to the northeast and crossed the coast of Mexico near 18°N on October 30. Fishing activity north of 10°N and east of 110°W was disrupted by the tropical storm activity during the last week. However, fishing weather was good most of the month south of 10°N where SST's averaged 28°C and were more than 1°C above normal in a band from 5°N to 10°N east of 120°W (Figure 9).

The equatorial front was significantly weaker than normal east of 100°W where positive SST departures more than 1°C developed along the equator east and west of the Galapagos Islands. In the Gulf of Panama and along the coast of Ecuador SST's were 1°C above normal also, and tuna fishing activity was slow along the coasts of Ecuador and Colombia. However, considerable tuna fishing activity took place off the north coast of Peru (3°S to 6°S) where a strong ocean front persisted on the northern edge of the Peru Current. A large area of above normal SST's has prevailed off the coast of Peru for five months; and during September and October, SST's increased at above normal rates up to the coast of Peru from 8°S to 11°S. Another large area with SST's more than 1°C above normal has been a persistent feature centered around 5°S between 90°W and 110°W. Periodic northwest displacements of the southern hemisphere high pressure system since July 1979 has led to frequent reductions in the southeast trade winds between the equator and 10°S where SST's have been above normal. It seems likely that east of 110°W from 5°N to 15°S and off the coast of central Peru, SST's will remain above normal through December 1979 (southern summer) because of the weak subtropical high pressure system and below normal trade winds. If this condition prevails into February 1980, El Niño (warm water) conditions may develop because of limited upwelling and wind mixing. This situation developed temporarily in 1975 and again in 1976 (the latest El Niño) along the equator and in the Peru Current. During anti-El Niño periods, SST's usually return to or remain below normal between the Galapagos Islands and Ecuador and along the coast of Peru. However, the persistences of warm water and below normal cloud cover in the equatorial region east of 110° this October may signal the beginning of the next warm water period in the eastern tropical Pacific. West of 130°W along the equator and in the southern hemisphere south of 10°S, the large areas of negative SST departures indicate active upwelling and strong trades along the equator and more than normal weather activity in the subtropical south Pacific.


OCTOBER 1961 - 1979
FIG. 1 —OBSERVED MEAN VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. / No. RESULTANT WIND SPEED (KTS.) / AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1000
1004
1008
1012
1016
1020
1016
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.


OCTOBER 1979
FIG. 2 — OBSERVED VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.
996
1000
1004
1008
1012
1016
1016
1016
0


OCTOBER 1-31, 1979
FIG. 3 - MEAN SEA SURFACE TEMPERATURE (°C)
13.6
10.7
12.8
12.6
13.8
16.6
17.8
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


OCTOBER 1-31, 1979
FIG.4-MEAN SEA SURFACE TEMPERATURE (°C)
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°
6
7
8
8
9
10
11
12
13
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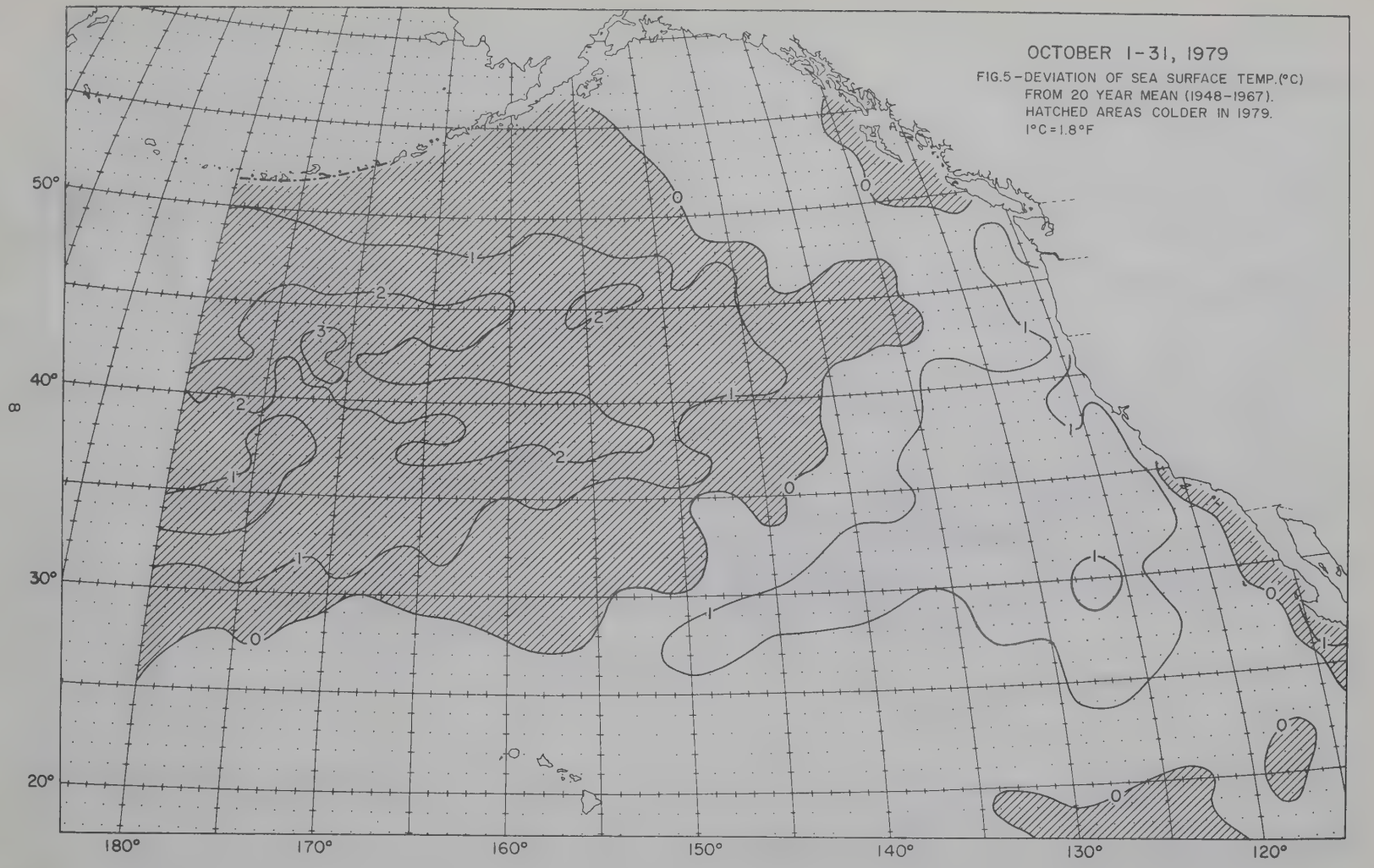
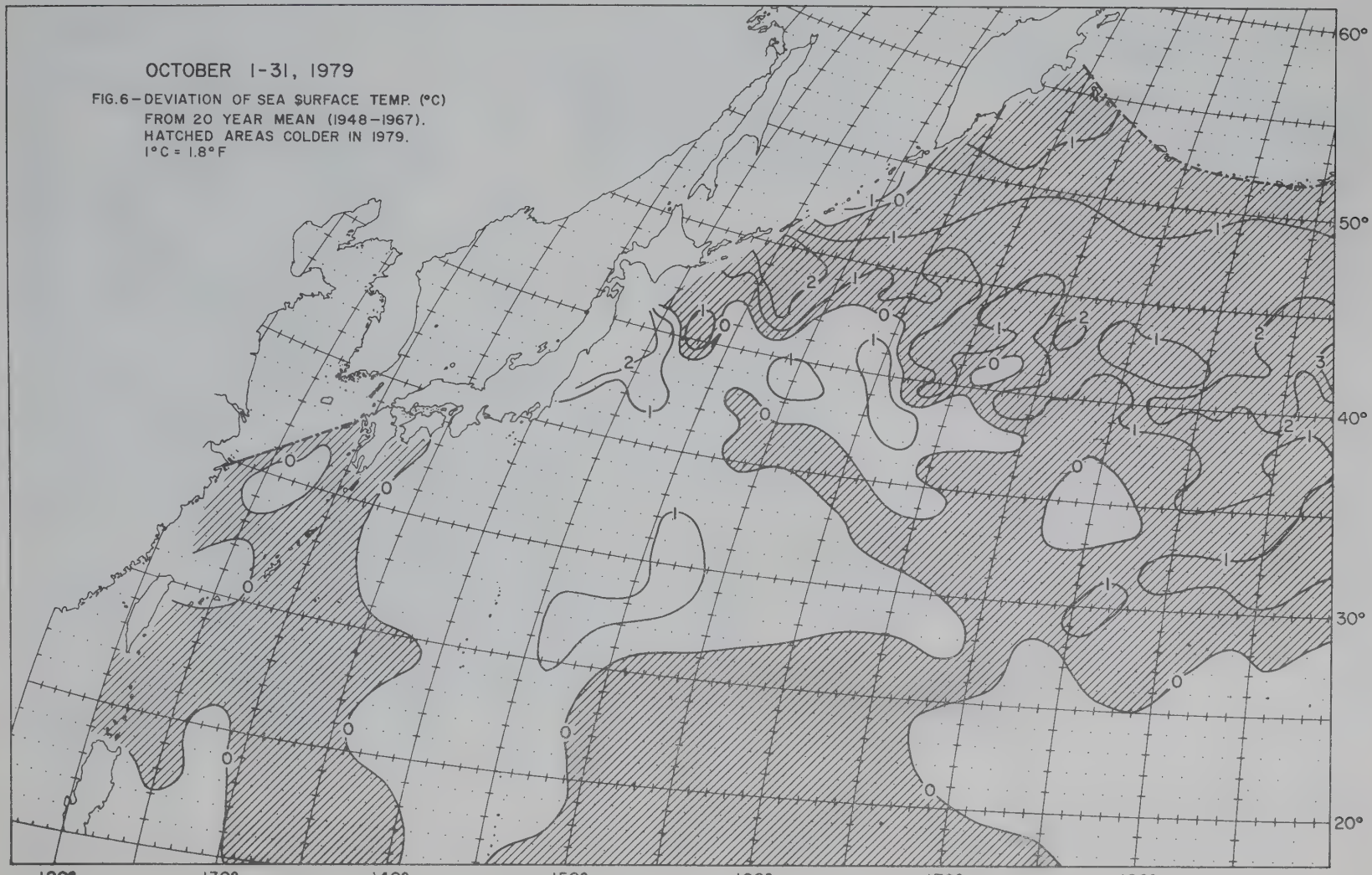
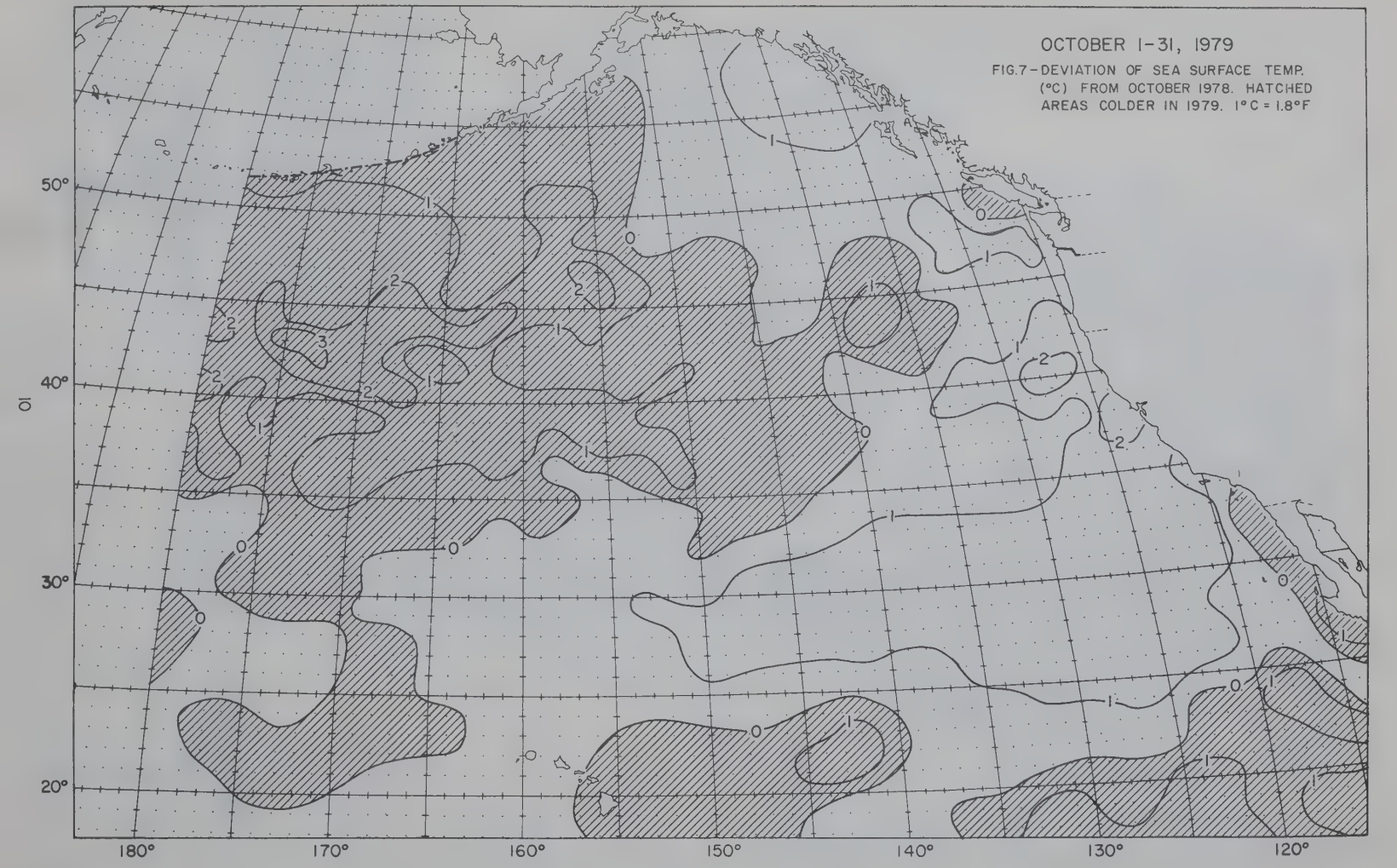
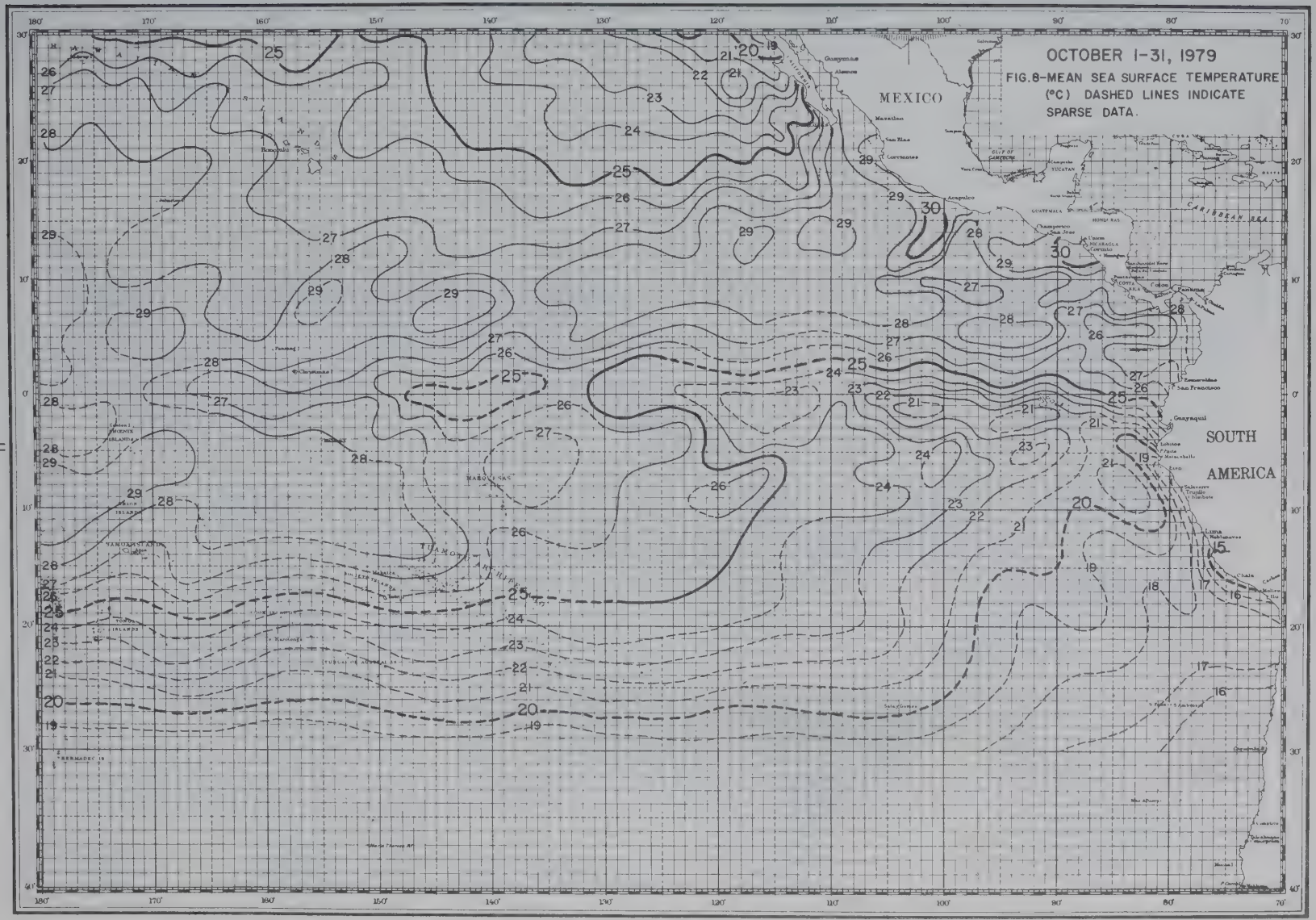

OCTOBER 1-31, 1979
FIG.5-DEVIATION OF SEA SURFACE TEMP.(°C)
FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1979.
1°C=1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


OCTOBER 1-31, 1979
FIG.6-DEVIATION OF SEA SURFACE TEMP. (°C)
FROM 20 YEAR MEAN (1948-1967).
HATCHED AREAS COLDER IN 1979.
1°C = 1.8°F
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


OCTOBER 1-31, 1979
FIG.7-DEVIATION OF SEA SURFACE TEMP. (°C) FROM OCTOBER 1978. HATCHED AREAS COLDER IN 1979. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


OCTOBER 1-31, 1979
FIG.8-MEAN SEA SURFACE TEMPERATURE (°C) DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CALIFORNIA
GUATEMALA
HONDURAS
Acapulco
Guayaquil
Panama
Colon
Cocos I.
Galapagos Islands
Clipperton I.
Revillagigedo Islands
San Francisco
Marquesas Islands
Tuamotu Archipelago
Tahiti
Easter I.
Bermuda
Lima
Callao
Salaverry
Trujillo
Chimbote
Paita
Talara
Tumbes
Manzanillo
Puerto Angel
Salina Cruz
Tehuantepec
Chiapa
Corinto
Nicaragua
Costa Rica
Panama
Yucatan
Campeche
Veracruz
Tampico
Mazatlan
San Blas
Lorenzo
Guaymas
Almejas
Cabo San Lucas
Socorro I.
Clarion I.
Revillagigedo I.
Cocos I.
Malpelo I.
Galapagos Islands

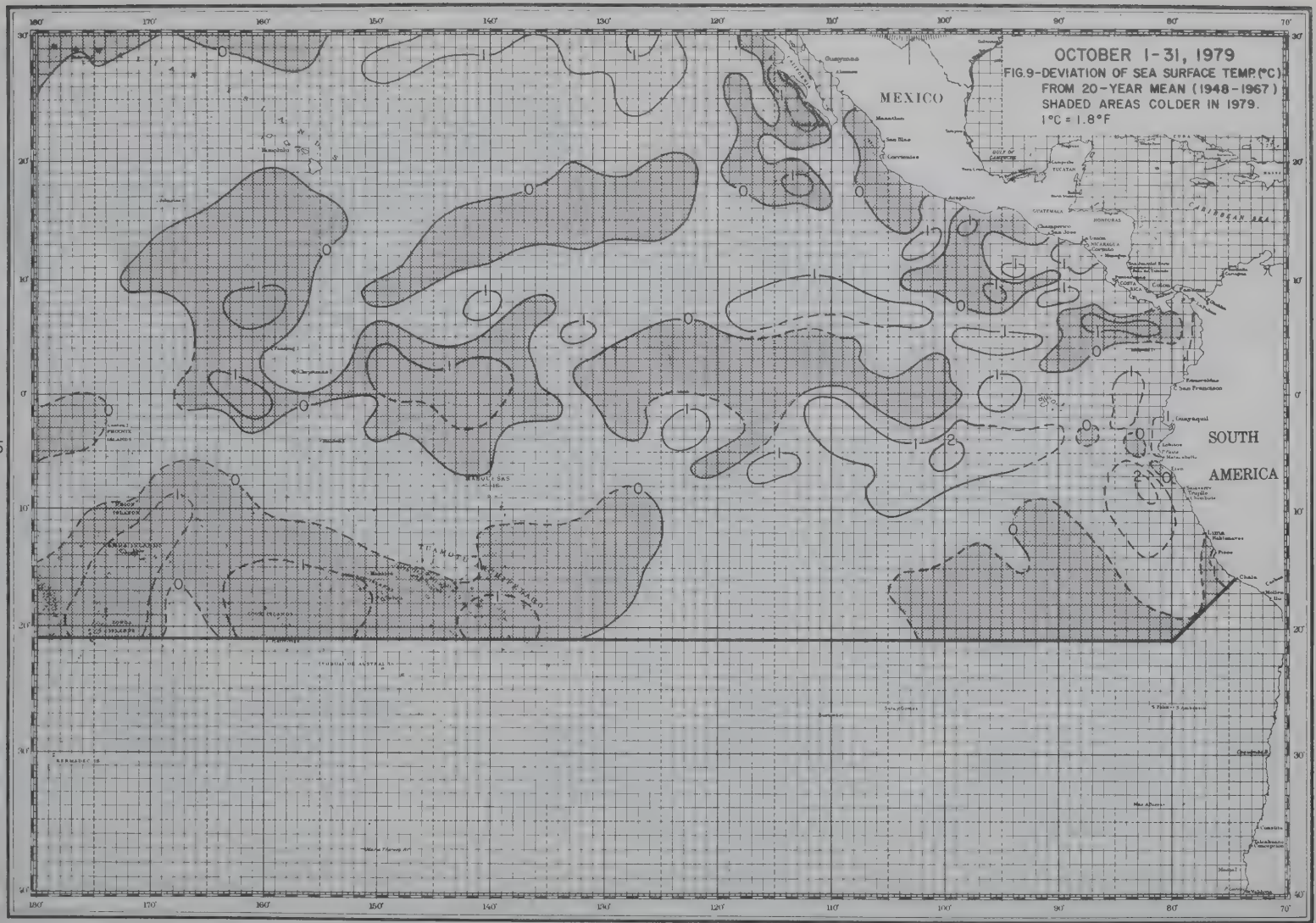
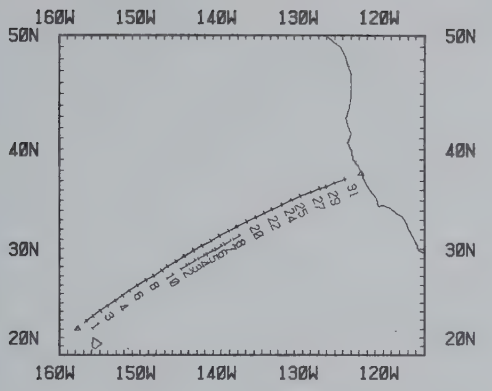

OCTOBER 1-31, 1979
FIG.9-DEVIATION OF SEA SURFACE TEMP.(°C)
FROM 20-YEAR MEAN (1948-1967)
SHADED AREAS COLDER IN 1979.
1°C = 1.8°F
MEXICO
SOUTH
AMERICA
CARIBBEAN AREA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
CUBA
Acapulco
Guayaquil
Lima
Chala
Callao
San Francisco
Champerico
San Jose
Corrientes
Mazatlan
Manzanillo
Salina Cruz
Puerto Angel
Tehuantepec
Chiapas
Yucatan
Campeche
Veracruz
Tampico
Progreso
Belize
Caracas
Maracaibo
Trujillo
Talara
Paita
Pisco
Mollendo
Arica
Iquique
Antofagasta
Valparaiso
Concepcion
Talcahuano
Montevideo
Buenos Aires
Rio de Janeiro
Santos
Recife
Fortaleza
Natal
Belem
Manaus
Barbados
Trinidad
Curacao
Aruba
Jamaica
Haiti
Puerto Rico
Bermuda
Galapagos
Marquesas
Tuamotu
Easter Island
Juan Fernandez
Tristan da Cunha
Gough Island
Falkland Islands
South Georgia
South Sandwich Islands
Bouvet
Prince Edward Islands
Crozet Islands
Kerguelen
Heard Island
Macquarie Island
Auckland Islands
Campbell Island
Antipodes Islands
Bounty Islands
Chatham Islands
Kermadec Islands
Tonga Islands
Fiji Islands
Phoenix Islands
Line Islands
Tuvalu
Samoa
Cook Islands
Society Islands
Tubuai Islands
Australs
Pitcairn
Mururoa
Fangataufa
Hao
Nukutavake
Vostok
Scott
Amundsen
Byrd
Ellsworth
Halley Bay
Syowa
Mawson
Davis
Mirny
Casey
Wilkes
Dumont d'Urville
Terre Adelie
Ross Sea
Ross Ice Shelf
Marie Byrd Land
Thurston Island
Peter I Island
Alexander I Land
Weddell Sea
Filchner Ice Shelf
Ronne Ice Shelf
Queen Maud Land
Enderby Land
Kemp Land
Princess Elizabeth Land
Queen Mary Land
Wilhelm II Land
Oates Land
Victoria Land
Balleny Islands
Macquarie Ridge
Kermadec Trench
Tonga Trench
Fiji Basin
Samoa Basin
Cook Basin
Society Basin
Tuamotu Basin
Chile Rise
Chile Basin
Peru Basin
Nazca Ridge
Nazca Plate
Cocos Ridge
Cocos Plate
Carnegie Ridge
Galapagos Rise
Galapagos Islands
Guatemala Basin
Mexico Basin
Tehuantepec Ridge
Clipperton Fracture Zone
Clarion Fracture Zone
Mendocino Fracture Zone
Murray Fracture Zone
Molokai Fracture Zone
Pioneer Fracture Zone
Gulf of California
Gulf of Tehuantepec
Gulf of Panama
Gulf of Guayaquil
Gulf of Penas
Gulf of Alaska
Gulf of Mexico
Gulf of Venezuela
Gulf of Paria
Gulf of Fonseca
Gulf of Nicoya
Gulf of Dulce
Gulf of Montijo
Gulf of Chiriqui
Gulf of Papagayo
Gulf of Tehuantepec
Gulf of Panama
Gulf of Guayaquil
Gulf of Penas
Gulf of Alaska
Gulf of Mexico
Gulf of Venezuela
Gulf of Paria
Gulf of Fonseca
Gulf of Nicoya
Gulf of Dulce
Gulf of Montijo
Gulf of Chiriqui
Gulf of Papagayo

FIGURE 10



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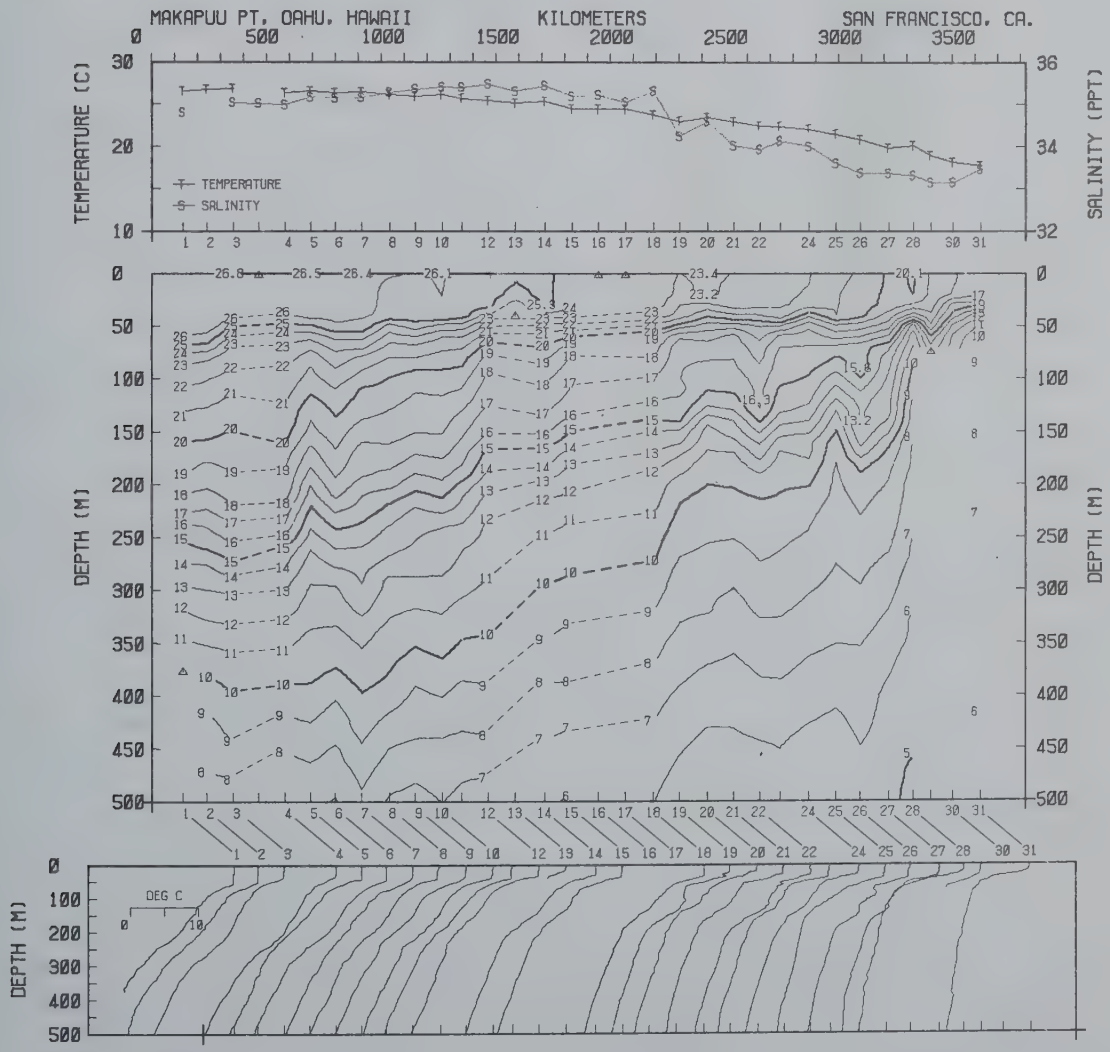

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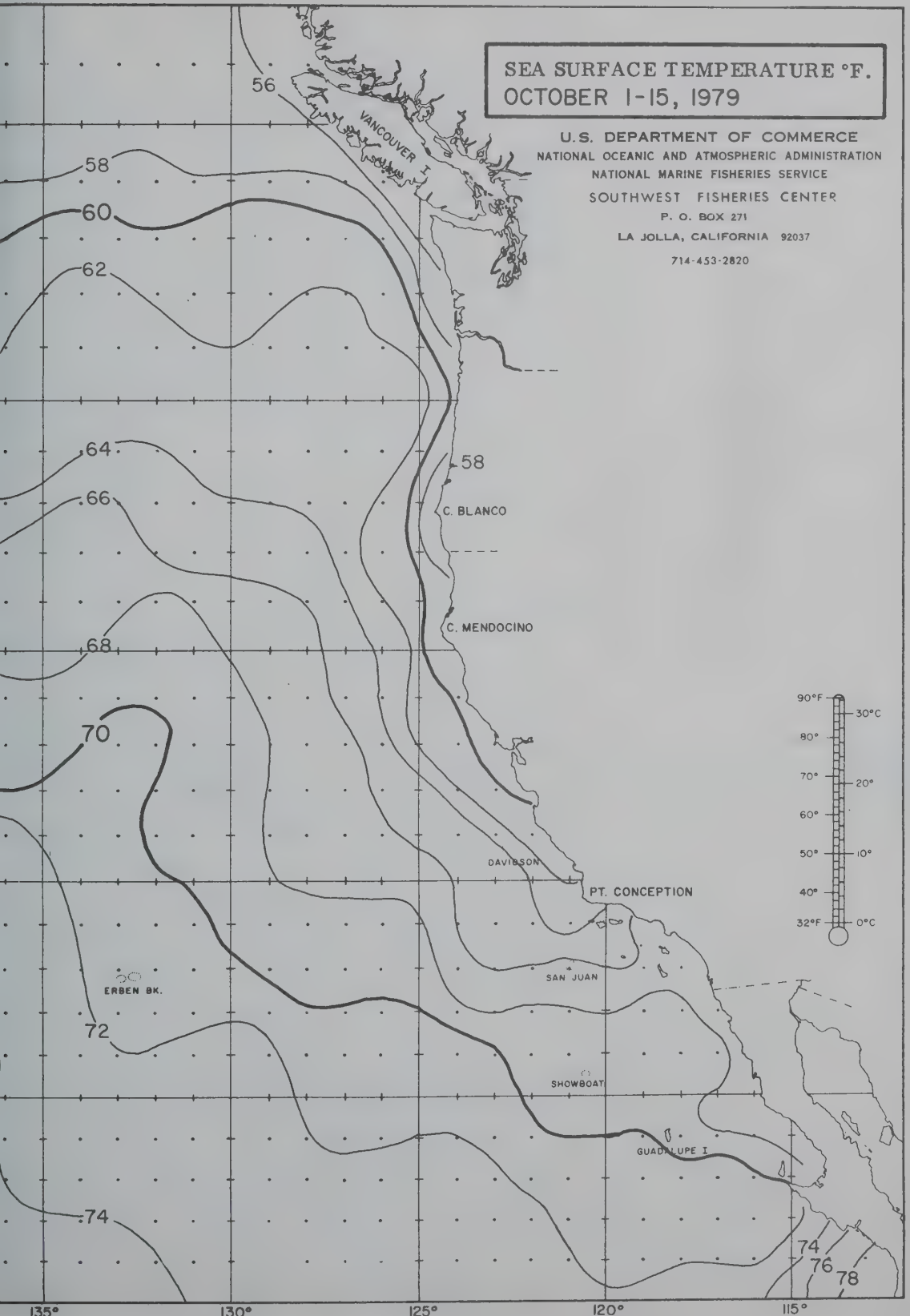

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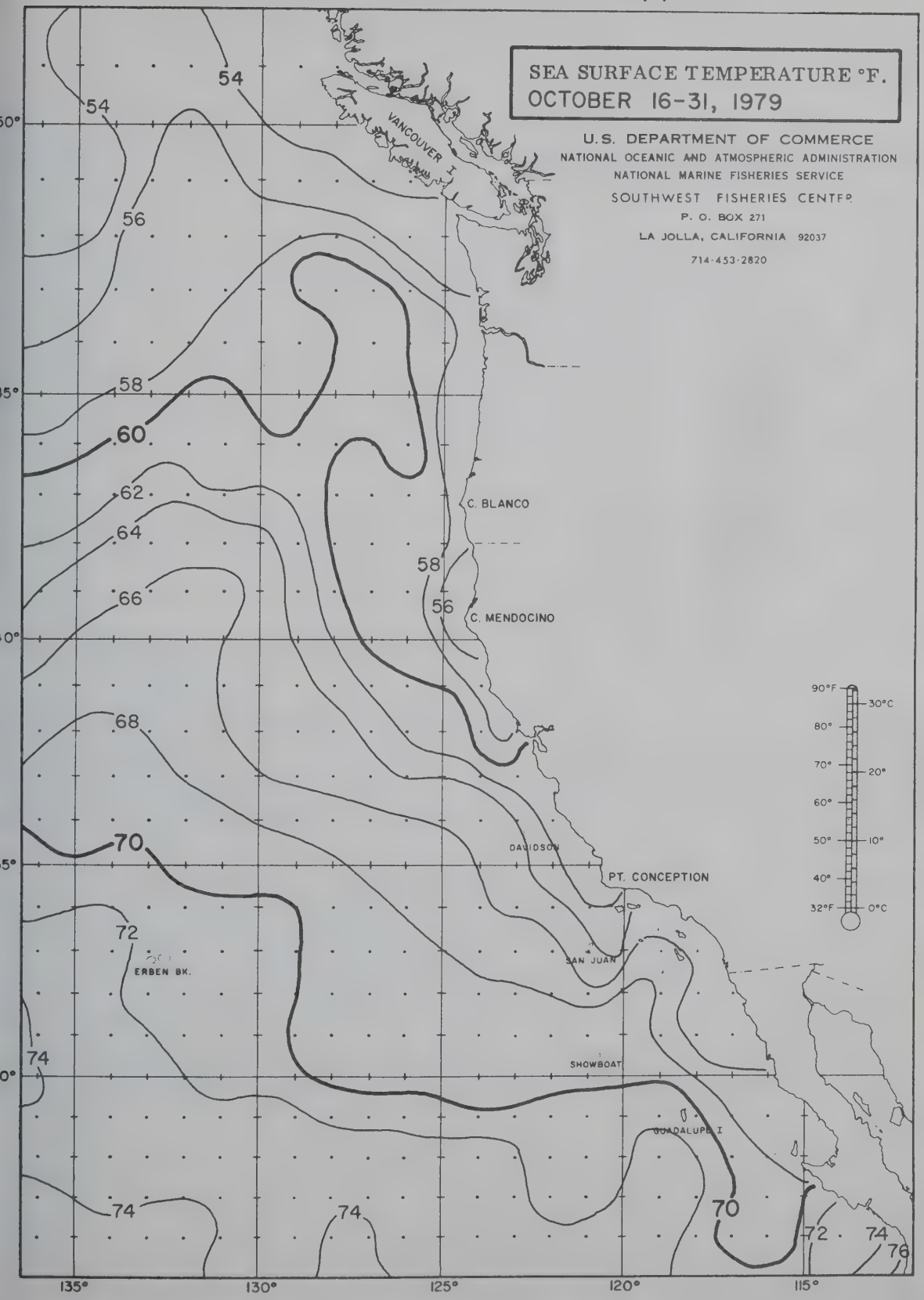

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Bulletin No. 79-7

ALBACORE FISHING SHOWS IMPROVEMENT DURING LAST PART OF SEPTEMBER

The most consistent albacore fishing during the last half of September was in waters about 350 to 400 miles off coast of Washington west of Cobb Seamount. Weather conditions improved off central California and many boats reported to have operated there, but catches were often spotty because fish would not bite. Several purse seiners reported to have made scattered catches of albacore off Baja California while targeting primarily for bluefin

Up to about 50 jigboats have been operating in the area west of Cobb Seamount. Daily catches have generally between 100-400 fish per boat and some boats have returned to port from this area with full loads. The sizes sh being caught are mostly 12-18 pounds, and sea surface temperatures are between 62.5-63°F (16.9-17.2°C). The of good fishing west of Cobb Seamount was located by the F/V Seawind while on charter to the American Fishermen's rch Foundation (AFRF) to scout for albacore and carry on albacore tagging operations.

Weather conditions improved during the last 2 weeks of September and a large number of boats operated in waters central California, where large numbers of albacore schools have been sighted. In addition, food organisms arine mammals have been abundant. Unfortunately, however, albacore have not been biting well and fishing ss has generally been spotty. The majority of the jigboats have been working the area primarily between the lson and Pioneer Seamounts from about 25 to 60 miles offshore. Top scores of more than 100 fish per day were by many boats on some days. But, fishing was often spotty because fish would not bite and daily averages were 20-50 fish per day per boat on a number of days. Catches have been on mixed sizes of fish ranging from 6-25 s (2.7-11.4 kg).

Baitboats fishing off central California have generally been concentrated in an area 100-120 miles off San n. Top baitboat scores have been approximately 300-400 fish per day, but fishing has been inconsistent. Catches by baitboats have been mostly on 20-25 pound (9.1-11.4 kg) fish. A number of the jigboats that had been fishing he Monterey area are reported to have moved to the area off San Simeon over the past weekend.

Most of the Canadian boats that fished albacore this season have tied up for the year because of problems ting their catches and an apparent slowdown in fishing off British Columbia.

The baitboat, Linda, completed its charter for the American Fishermen's Research Foundation on September 22. inda, like many boats fishing off central California this season, was hampered by poor weather and slow fishing. al of 481 albacore was tagged on the Linda.

During the last half of September the subtropical high pressure system was a dominant feature north of Cape cino as it has been for most of the summer. South of Monterey Bay surface pressures were lower than normal in oastal region. Offshore more than 200 miles the high pressure center was north of 35°N and west of 130°W most e period, and a ridge of high pressure frequently extended northeast from the center into the Gulf of Alaska ver southern British Columbia. Most of the Pacific storm centers moved across the Gulf of Alaska north of 50°N northern Canada. Along the coast of California from Cape Mendocino to Point Conception surface winds were g and seas very rough from September 19 to 24. However, over most of the fishing grounds south of Vancouver d, fishing weather was better than usual and sea surface temperatures (SST) were higher than normal.

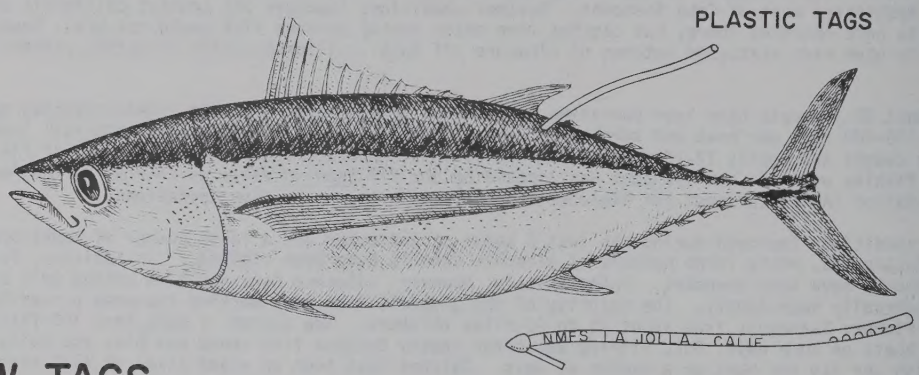
Except for the coastal region from Cape Blanco to Cape Mendocino, where SST's were less than 58°F (14.5°C), SST's 2° to 4°F (1.1° to 2.2°C) above normal over most of the coastal areas from Point Conception to Vancouver Island. ore west of 130°W and north of 40°N, SST's were 2° to 4°F (1.1° to 2.2°C) above normal also. In this area the (16.7°C) to 68°F (20.0°C) isotherms were bulged unusually far northward (see chart). This situation has oped over the past 2 to 3 months due to the marked influence of the high pressure ridge with relatively light and lack of any significant weather frontal passages south of 50°N. South of 35°N, SST's were more than 2°F C) above normal everywhere except in the small area off Point Conception to San Juan Seamount and inshore to ina Island. The best ocean frontal boundaries (temperature edges) along the coast were offshore from Cape o to Cape Mendocino and from Davidson to San Juan Seamounts. However, the temperature edges and coastal up- ng were much weaker in September than normal.

The National Weather Service Long Range Prediction Group's outlook for the first half of October indicates only dual seasonal change from the past summer's pattern. The North Pacific storm tracks will slowly move southward ll the subtropical high pressure system. Therefore, SST's will probably remain 1° to 2°F (0.5° to 1.1°C) r than normal during the first half of October.

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNED

RECORD:

- WHERE
- WHEN
- HOW

} *FISH WAS CAUGHT*

- LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

NOTIFY NMFS P.O. BOX 271, LA JOLLA, CA. TEL. (714) 453-2820

THE AMERICAN FISHERMEN'S RESEARCH FOUNDATION WILL AWARD CASH PRIZES FOR YELLOW & RED TAG NUMBERS DRAWN IN AN ANNUAL LOTTERY.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

Bulletin No. 79-8

COMMERCIAL ALBACORE BOATS FISH OFF CENTRAL CALIFORNIA AND COLUMBIA RIVER

Commercial albacore boats were still fishing between Morro Bay and San Francisco and about 360 miles west of the umbia River during October 1-14. San Diego sportboats, meanwhile, reported catches on large albacore west of Diego.

Baitboats and jigboats off central California worked 100-120 miles off Morro Bay in early October before moving thward to an area between Monterey and San Francisco and south, again, to the Monterey vicinity. The average thes were approximately 1 ton and 2.5 tons for 2-3 days of fishing per jigboat and baitboat, respectively. Most the albacore caught and landed from central California waters were averaging 20-25 pounds (9.1-11.4 kg) as the 8 pound (5.4-8.2 kg) fish which normally predominate off California are still not being caught in great numbers. best scores heard during this period were 5 tons for a day of fishing by a couple of baitboats from the Monterey-Francisco location.

A few jigboats continued to work west of the Brown Bear-Cobb Seamounts area west of the Columbia River. Albacore 0-11 pounds (4.5-5.0 kg) were caught and scores were generally 75-150 fish a day per boat for most of the first eks of October.

San Diego sportboats out of Municipal Pier caught large albacore of mostly 30-35 pounds (13.6-15.9 kg) from 0 miles west of San Diego. Catches were small on days when albacore were caught; however, there were a couple ays when these boats landed 50-60 albacore.

During the first half of October the eastern Pacific high pressure system continued to be the dominant weather tem over the Pacific northeast from northern British Columbia to central California and westward to 140°W. South 0°N, surface pressures and winds were usually weaker than normal, and after October 9 a weak low pressure system loped near 35°N, 130°W. Although several weak weather fronts moved eastward from the low center across the coast entral California, fishing weather was good in most coastal regions. However, seas were rough during the first from the Columbia River to Cape Mendocino when northerly surface winds strengthened due to a build-up of the pressure system west of Washington and Oregon. The major weather systems continued to cross the coast of Alaska northern British Columbia because the Aleutian Low was centered over the Aleutian Islands, west of 160°W, and the pressure system remained strong over the southeastern part of the Gulf of Alaska.

Sea surface temperatures (SST) cooled slightly north of 45°N but elsewhere there were no signs of the usual onal cooling (see chart). Because of the strong influence of the Pacific high pressure system north of 40°N below normal pressures along the central and southern California coasts, surface wind-mixing and coastal upwelling weak or absent over most of the fishing grounds. As a result, the only areas with significant temperature edges cean frontal boundaries were those from Cape Blanco to the Columbia River and off the coast of Monterey Bay south- to Davidson Seamount. Over nearly all of the eastern Pacific fishing grounds between 120°W and 135°W, SST's were than 2°F (1.1°C) above normal. SST's were more than 4°F (2.2°C) above normal 60 to 100 miles offshore from couver Island to Cape Blanco, from 38°N to 41°N west of Cape Mendocino and west of San Juan Seamount. In these s the SST contours bulged sharply northeastward (see chart) and reflected no seasonal cooling.

The National Weather Group indicates only a gradual shift back to normal in the atmospheric circulation in ber. Therefore, during the last half of October, SST's are expected to remain more than 2°F (1.1°C) over most of eastern Pacific except north of 48°N and along the west coast south from Cape Mendocino to Guadalupe Island. In e areas, SST's may return to normal or be only slightly above normal. The coldest coastal SST's and best temp- ture edges will be found from northern California to the Columbia River and also between the Davidson and San Juan ounts.

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

ber 16, 1979

$ REWARD $

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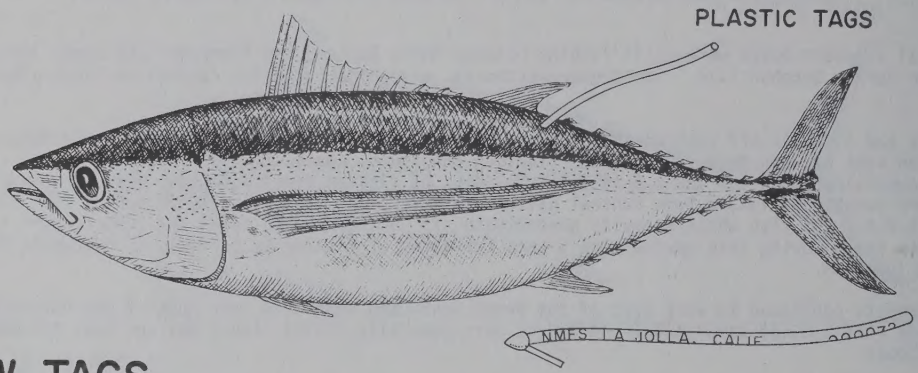

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